



*Larry Hogan, Governor*  
*Boyd Rutherford, Lt. Governor*  
*Mark Belton, Secretary*  
*Joanne Throwe, Deputy Secretary*

October 17, 2018

The Honorable Joan Carter Conway  
Chair, Senate Education, Health and Environmental Affairs Committee  
2 West Miller Senator Office Building  
Annapolis, Maryland 21401

The Honorable Kumar P. Barve  
Chair, House Environment and Transportation Committee  
Room 251 House Office Building  
Annapolis, Maryland 21401

**Re: Submission of Report on Maryland Aquaculture Coordinating Council Annual Report**

**Agency:** Maryland Department of Natural Resources

**Report Authority:** Natural Resources Article § 4-11A-3.2(c)(1)(i) (MSAR #9426)

Dear Chairs:

In accordance with Section 4-11A-3.2(c)(1)(i) of the Natural Resources Article, the Department of Natural Resources hereby submits the annual summary of the Maryland Aquaculture Coordinating Council Annual Report. The document addresses the requirement to report yearly for advancing Maryland aquaculture, including recommendations for a fee structure on aquaculture operations in order to reduce State expenditures on aquaculture programs.

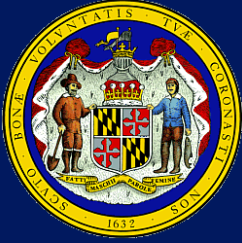
If you have any questions about this submission, please do not hesitate to contact Stephen Schatz, Director, Legislative and Constituent Services (Acting), at 410-260-8004 or [Stephen.Schatz@maryland.gov](mailto:Stephen.Schatz@maryland.gov).

Sincerely,

Mark Belton  
Secretary

enclosure

cc: Sarah Albert, Legislative Library (5 hard copies)



2018

# Maryland Aquaculture Coordinating Council

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*Annual Report 2018*

Situation and Outlook report on Council activities with recommendations for advancing Maryland aquaculture. Presented to the Governor of Maryland, Chair of the Senate Education, Health and Environmental Affairs Committee and Chair of the House Environment and Transportation Committee

*Cover: Honga Oyster Company co-owner Bill Cox (left) talks with NOAA scientist Dr. Suzanne Bricker (2nd from left) and University of Maryland Extension Specialist Matt Parker (right) while Honga Oyster Co. co-owner Donnie Simmons helps with culture cages*



Tawes State Office Building  
580 Taylor Avenue, B-2  
Annapolis, Maryland 21401

TO: The Honorable Larry Hogan, Governor  
The Honorable Joan Carter Conway, Chair, Senate Education, Health and  
Environmental Affairs Committee and  
The Honorable Kumar Barve, Chair, House Environment and Transportation Committee

FROM: Donald Webster, Chair, Maryland Aquaculture Coordinating Council

DATE: July 1, 2018

SUBJECT: ANNUAL REPORT OF THE AQUACULTURE COORDINATING COUNCIL

I am pleased to present the 2018 report of the Maryland Aquaculture Coordinating Council. The Council has provided leadership to develop an aquaculture industry that has brought Maryland national attention and recognition. The dedication of our Council members to the growth provided by this industry continues, and we believe that aquaculture provides significant benefits for economic growth and expanded employment of our residents while aiding the environment and providing our state and nation with quality products.

The Coordinating Council has carried out many of the tasks assigned to it by the General Assembly when it was created in 2005. We consistently recommend changes to regulations to help the industry rebuild depleted shellfish resources while creating opportunity for an increasing number of aquaculture businesses to become established and expand. The Council's defined, broad-based membership includes representatives of industry, state agencies, General Assembly, University of Maryland and support organizations that provides a model for progress by working together.

We see opportunities to grow new businesses while encouraging traditional watermen to transition to aquaculture to assure their future. Their abilities are well suited to aquaculture production and many have already entered the industry. We look forward to their contributions in expanding production to provide expanded economic opportunities for rural communities and help improve water quality while creating the habitat needed to foster healthy Chesapeake and coastal bays.

There are still challenges to overcome for aquaculture to reach its full potential in Maryland. Therefore, we submit our annual recommendations for your consideration and look forward to continuing the strong collaboration with our elected leaders that has helped us forge ahead.

The Council will be pleased to provide briefings to you or your members if additional information is needed to develop the recommendations presented in this report. I wish to thank you for the strong support you have provided to the aquaculture industry, as well your foresight and confidence in creating the Maryland Aquaculture Coordinating Council.

## **Partners Working Together for Aquaculture Development**

### **Maryland Agencies**

*Department of Health*

*Department of Commerce*

*Department of Agriculture*

*Department of the Environment*

*Department of Natural Resources*

*Natural Resources Police*

*MD Agriculture & Resource Based Industries Development Corporation*

### **University System of Maryland**

*University of Maryland*

*University of Maryland Extension*

*University of Maryland Center for Environmental Science*

### **Federal Agencies**

*USDA Natural Resource Conservation Service*

*US Army Corps of Engineers, Baltimore District*

*National Oceanic & Atmospheric Administration*

### **Non-Governmental Organizations**

*Maryland Farm Bureau*

*Oyster Recovery Partnership*

*The Phillip E. and Carole R. Ratcliffe Foundation*

***For ECONOMIC GROWTH...***

***For INCREASED EMPLOYMENT...***

***For Aiding our ENVIRONMENT***



# Executive Summary

The Aquaculture Coordinating Council (ACC) was created by the Maryland General Assembly in 2005 and charged with assisting the development of commercial aquafarming by studying and making recommendations on changes required to attract investment and promote economic and employment growth in the industry. The Council provides a forum for agencies, institutions, political leaders and businesses to resolve issues while providing strong and diverse expertise to meet its legislative mandate to “advance Maryland aquaculture”.

Support for development of this economically and environmentally beneficial industry has resulted in nearly 7,000 acres now being in active shellfish production. Watermen and entrepreneurs have entered the industry, bringing advances in production techniques, business development and marketing that have led to the formation of new companies, new brands, expanded sales and development of support industries including equipment fabrication, vessel construction and supplies. Farming businesses continue to expand and invest in planting, raising and harvesting millions of shellfish annually.

The Council has broad and diverse experience and expertise on aquaculture issues that aids in creating solutions for identified needs. The following issues have been identified as current impediments and must be addressed to support continued growth and opportunity for aquaculture in our state. We respectfully submit the following for consideration:

## Issues

**I. Water Quality Monitoring:** The Maryland Department of Environment (MDE) is responsible for carrying out federal (Title 21 CFR Part 123) and state (Natural Resources Article 4-742 Maryland Annotated Code) mandating bacteriological monitoring and investigation into pollution sources to ensure that shellfish are harvested from unpolluted waters. In addition, MDE conducts intensive shoreline surveys to identify and mitigate pollution sources that may impact shellfish harvesting waters. Continued expansion of the oyster aquaculture industry has resulted in year- round oyster harvest that is increasing the number of monitoring stations needed to ensure adequate spatial coverage to protect public health. This has also increased personnel hours for shoreline surveys, and equipment and operational resource needs to support their monitoring and data collection.

**II. Shellfish Disease Diagnostic Services:** Shellfish diseases are a continuous problem for growers to deal with while expanding aquaculture production. Diagnostic services are critically needed for effective farm management but are constrained by lack of resources in the state laboratory conducting this work. This ability must expand to support industry growth with the increasing need for both routine and catastrophic diagnostic services. Without the ability to provide low cost service on a timely basis, Maryland will be unable to successfully compete with states that provide these services to their industry quickly and at minimal cost.



**III. Aquaculture Innovation Funding:** Legislation creating the Aquaculture Coordinating Council provided a series of tasks for it to carry out. Item ii directed the Council to *“Establish and monitor a grant program for the implementation of appropriate projects that support the economic health of the State aquaculture industry”*. To date, this charge has not been implemented because funds have not been provided. With the growth of the shellfish aquaculture industry, new equipment and methods have been brought to Maryland for the production of quality oysters and hard clams with strong growth being shown during the past five years. However, those in business are often unable to allocate funds to develop innovative ideas they have for applied research projects that could result in more efficient gear, higher output, lower input costs and identification of new markets. Providing funds for this purpose would keep Maryland producers at the forefront of the industry nationally.

**IV. Protection of Property:** The Natural Resources Police (NRP) provides a strong presence to protect our marine resources. However, their ranks have been drastically reduced during the past two decades, leading to concern for their ability to protect natural shellfish stocks and to assist private growers in keeping their crops safe and secure. When NRP was merged with the Maryland Park Rangers in 2005, a total of 353 NRP officers and law enforcement officer park rangers were in the unit. Immediately after the merger, 35 PINS were abolished or transferred to other agencies. Currently, NRP has an authorized strength of 260 with 26 vacancies and more to come. Only 188 positions are sergeants and below assigned to uniformed, field patrol. These are the officers that are actually in the field on a daily basis.



*Maryland Natural Resources Police provide protection for farm raised and natural shellfish grounds on land, water and in the air*

It is critical for the NRP to be able to respond quickly and effectively to aquaculture problems and theft has repeatedly been identified as a principal problem in industry surveys. Support for NRP assets is required if Maryland is going to meet the challenge of attracting private capital to invest and expand production of aquaculture crops to meet growing demand for quality seafood. The Council has annually urged state leaders to provide additional funds for law enforcement officers to keep a strong and visible force on the waters of the State. We do so again to urge that new assets provided to this vital force.



# Maryland Aquaculture Coordinating Council

## Annual Report 2018

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### The Council - A Legislative History

The Aquaculture Coordinating Council has a specified membership that includes Maryland agencies involved in the permitting, regulating, policing and advancing the industry. It includes three representatives of the University System of Maryland, appointed members of both the aquaculture and commercial fishing industries, and non-governmental organizations. The Council is charged by the General Assembly with a series of designated tasks that are assigned to further the development of this industry through all its segments - production of finfish, shellfish and aquatic plants. Among the tasks assigned to the Council are to:

- *Develop Best Management Practices on or before December 31, 2006;*
- *Investigate and, to extent feasible, enhance the area of State waters available to private lease for aquaculture and the seafood industries;*
- *Support the aquaculture industry in its efforts to implement innovative procedures and to comply with associated regulations;*
- *Provide for the establishment of Aquaculture Enterprise Zones in the Chesapeake and coastal bays;*
- *Formulate and make proposals to the Governor, and the Senate and House committees*
- *responsible for the Environment, for advancing Maryland aquaculture, including recommendations for a fee structure to reduce State expenditures on aquaculture programs;*
- *Establish and monitor a grant program for the implementation of appropriate projects that support the economic health of the State aquaculture industry;*
- *Conduct applied studies of projects and products that will expand the aquaculture industry*
- *in the State;*
- *Conduct market tests to determine acceptability and potential demand for new aquaculture products;*
- *Implement pilot projects and small commercial demonstrations to resolve outstanding quality of production issues and to educate industry representatives, regulators, and other partners;*
- *Enhance the awareness of innovative aquaculture products and programs among commercial buyers and the general public; and*
- *Regularly review State regulations impacting aquaculture and make recommendations to the Aquaculture Review Board regarding any necessary or advisable regulatory changes.*

*The Coordinating Council is directed to provide policy recommendations to “advance Maryland aquaculture”*



## Engaging our Citizens

The Coordinating Council schedules time for public input at regular and workgroup meetings and has developed procedures to assure non-Council expertise in all investigations and proceedings. The Council has an e-mail list that is used to notify interested parties about general and special meetings, as well as those of workgroups. Since initiating this service, attendance has noticeably increased with regular and broad representation from growers and other stakeholder groups.

The Council uses contact with citizens as an opportunity to identify potential new members who may be interested in serving. Maryland law requires three aquaculture industry representatives and three Tidal Fish License (TFL) holders be appointed to the Council. These members serve staggered terms and may be appointed for two consecutive terms before being required to take at least one year off before becoming eligible for appointment again. Since its formation, the Council has been fortunate to have had superior representation from those who have been in the appointed categories, with several being elected to leadership roles. Four members (two in each Industry/TFL category) rotate from the Council each year. The building of a strong shellfish aquaculture community has created opportunities to identify new growers for Council appointments. Members help to identify problems and areas of concern and work together to strengthen Maryland aquaculture to create **expanded economic growth and increased employment while aiding the environment.**

## Status of Maryland Shellfish Aquaculture

Maryland lease laws were revised by unanimous passage of the 2009 General Assembly, providing opportunity to attract private capital to rebuild the depleted oyster resource. Incorporating the new program in a statewide Oyster Management Plan, applications were accepted in September 2010. The following year, due to expanding interest in applications for water column leases, legislation centralized aquaculture authority in the Department of Natural Resources where the Aquaculture and Industry Enhancement Division provides coordination between the Department and the US Army Corps of Engineers, Baltimore District to provide lease applicants with a ‘one-stop’ shop to handle required legal documentation to get into business.



The following tables illustrate the strong progress that has been made to increase shellfish aquaculture leases from September, 2010, when the new program was implemented, to the present. Through May 2018, the Maryland shellfish aquaculture industry included 420 shellfish leases covering 6,803 acres. Of these, 345 are Submerged Land Leases (SLL) or traditional spat on shell bottom leases, which currently encompass 6,420 acres. Water Column Leases (WC), which utilize innovative containment gear such as cages or floats, now cover 382 acres. To date, in 2018, DNR has permitted 463 distinct individuals to work on these leases.

## Shellfish Aquaculture Lease Summary

Type	Acres	Number
<b>Submerged Land Lease</b>	<b>6,420</b>	<b>345</b>
<b>Water Column Lease</b>	<b>383</b>	<b>75</b>
<b>TOTAL</b>	<b>6,803</b>	<b>420</b>

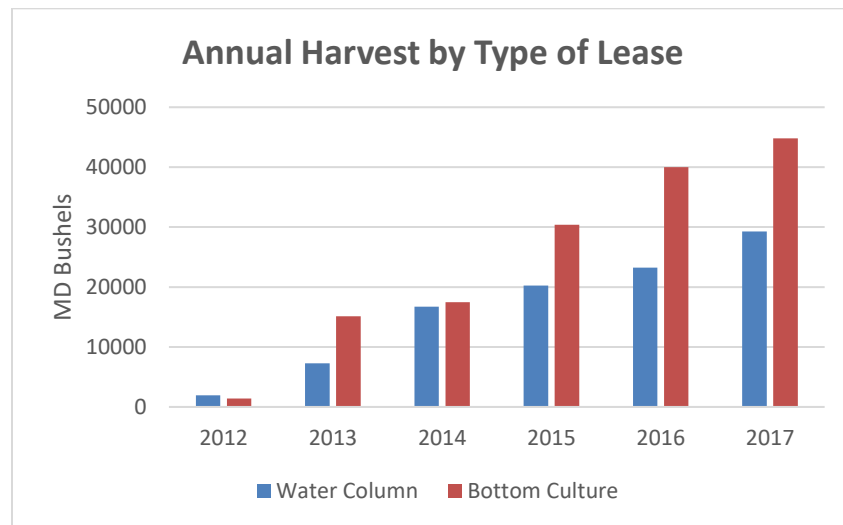
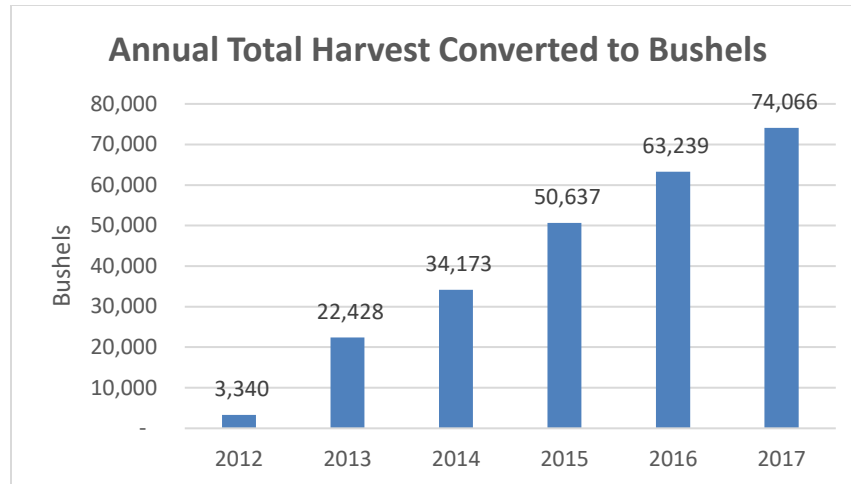
LEASE ACREAGE BY TYPE AND COUNTY												
Type	AA	CA	CH	DO	KE	QA	SM	SO	TA	WI	WO	Total
<b>SLL</b>	<b>380</b>	<b>122</b>	<b>39</b>	<b>2,379</b>	<b>45</b>	<b>25</b>	<b>717</b>	<b>792</b>	<b>661</b>	<b>1,160</b>	<b>101</b>	<b>6,420</b>
<b>WC</b>	<b>15</b>	<b>20</b>	<b>0</b>	<b>97</b>	<b>5</b>	<b>2</b>	<b>163</b>	<b>20</b>	<b>21</b>	<b>0</b>	<b>41</b>	<b>383</b>
<b>Total</b>	<b>395</b>	<b>141</b>	<b>39</b>	<b>2,476</b>	<b>50</b>	<b>27</b>	<b>880</b>	<b>812</b>	<b>681</b>	<b>1,160</b>	<b>141</b>	<b>6,803</b>

LEASE NUMBER BY TYPE AND COUNTY												
Type	AA	CA	CH	DO	KE	QA	SM	SO	TA	WI	WO	Total
<b>SLL</b>	<b>25</b>	<b>12</b>	<b>2</b>	<b>77</b>	<b>1</b>	<b>3</b>	<b>73</b>	<b>32</b>	<b>63</b>	<b>49</b>	<b>8</b>	<b>345</b>
<b>WC</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>22</b>	<b>1</b>	<b>1</b>	<b>24</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>10</b>	<b>75</b>
<b>Total</b>	<b>29</b>	<b>15</b>	<b>2</b>	<b>99</b>	<b>2</b>	<b>4</b>	<b>97</b>	<b>37</b>	<b>68</b>	<b>49</b>	<b>18</b>	<b>420</b>

**Oyster Lease Harvests:** Annual harvest from shellfish leases has increased annually during the past six years. In 2017, growers reported harvesting over 74,000 bushels of oysters from leases. This will increase as additional acreage is brought into production and previously planted oysters reach market size. Harvests from both submerged land and water column leases has risen annually and growers are mandated to report their harvest monthly. Water column leases principally raise single oysters that are favored by the growing number of raw bars and seafood restaurants due to their consistent size, shape and meat quality. Many of these are produced from specially bred lines of oysters that are the result of scientific work between institutions in the Chesapeake Bay region. Manipulation of chromosomes results in oysters that do not spawn in summer, thereby retaining excellent meat quality for year round consumption.

Water column leaseholders generally report harvest in terms of single oysters since that is how they are raised. They are principally sold in hundred count boxes. Submerged land leaseholders report harvest in bushels, a traditional way of selling. The Department uses a conversion factor of 300 single oysters per bushel to provide a comparison with public harvest data.

Submerged land leases provide oysters both to restaurants and to processing plants where the meats are removed from the shells and sold in containers for cooking. This industry was historically the one in which Maryland was a national leader, with a decline from 44 shucking plants in the late 1970s to less than 10 remaining today. Many watermen have received leases and 44% of leaseholders are Tidal Fish License (TFL) holders today, indicating that they may harvest from public oyster bars as well as private leases to maintain their lifestyle.



## Recent Council Workgroups

### *Theft Prevention Workgroup - 2018*

Theft of private property has been an identified industry problem since surveys were begun in the late 1970s. In recent years, with expansion of oysters on leases and declining natural populations, it has become a larger issue. Theft has been experienced by those who grow spat on shell planted on bottom leases, as well as by those who raise oysters in contained gear. With the decline in the number of police officers on the water and the legalization of dredges on board vessels where they were once prohibited, it has raised the issue to the level of needing the Council's attention.

Protection of private property is a fundamental responsibility of government and, as on land, requires a combination of technology for detecting the presence of law breakers, discovery of the theft, identification of those committing the crime, and a justice system that understands and prosecutes those caught with the seriousness that it deserves as a property crime.

During 2018, the Council's legislative representatives requested that a workgroup be formed to provide input on the extent of the problem and develop recommendations for change in laws and regulations to stem the problem. The Council responded by appointing a workgroup to study this issue during the summer and report by October 1, 2018. Charges to the workgroup include:

1. Review current laws protecting private aquaculture products to determine their adequacy
2. Survey industry to determine the extent of the theft problem
3. Review recent cases brought against violators; assess outcome(s) and reported penalties
4. Provide information on other states' prevention/sanction laws and regulations
5. Recommend changes in Maryland laws and regulations, enforcement activities and procedures to better ensure protection of private property
6. Provide a report to the ACC legislative representatives for future action

Workgroup Members:

- **Mr. Colby Ferguson**, *Maryland Farm Bureau*
- **Mr. Karl Roscher**, *MD DNR Aquaculture Division*
- **Mr. Carlton Dabb**, *Office of the Attorney General*
- **Lt. Catherine Medellin**, *Maryland Natural Resources Police*
- **Ms. Nicole Cook**, *MD Ag Law Initiative Educational Program*
- **Mr. Donald Webster**, *University of Maryland Extension*
- **Mr. William Cox**, *Honga Oyster Company, Dorchester County*
- **Mr. Samuel Leonard**, *Ruff and Ready Seafood, Talbot County*
- **Mr. Robert Witt**, *Witt's Seafood, Anne Arundel County*
- **Mr. J.D. Blackwell**, *38° North Oysters LLC, St. Mary's County*
- **Dr. Allison Colden**, *Chesapeake Bay Foundation*
- **Mr. Lawrence Jennings**, *Coastal Conservation Association - Maryland*
- **Ms. Alison Venable**, *Harry Hughes Center for Agro-Ecology (non-voting)*
- **Ms. Danielle Naundorf**, *University of Maryland Law School (non-voting)*

### *Aquaculture and Submerged Aquatic Vegetation - 2017*

A recent issue involved the expansion of submerged aquatic vegetation (SAV) in areas of the Chesapeake and coastal bays. Maryland law requires new lease applications be reviewed for the presence of SAV and are prohibited from being issued in areas where the presence of SAV has been identified in any of the previous 5 years. However, law also prohibited leaseholders from working in areas of existing leases when SAV encroached. Where conflicts existed, use restrictions were placed on the lease to protect the SAV. This caused growers to be unable to use portions of their leases for shellfish production and affected their sales and profitability.

Council discussion of this issue led to the filing of Senate Bill 964 by Senator Klausmeier and Delegate Mautz during the 2017 General Assembly. The bill directed the DNR to review the issue and submit a report and recommendations to the Governor and General Assembly to resolve the issue. DNR requested the Council assist in this and a workgroup was established. It included

agency staff, scientists, industry and environmental representatives. Meetings were held monthly to develop information, assess the issue and make recommendations for resolution to the Council. These were provided in a final report to the DNR and led to modification to allow leaseholders to continue to operate successfully.

Workgroup Members:

- **Dr. Reginal Harrell**, *University of Maryland*
- **Mr. Donald Webster**, *University of Maryland Extension*
- **Mr. Karl Roscher**, *MD DNR, Aquaculture Division*
- **Ms. Rebecca Golden**, *MD DNR, Submerged Aquatic Vegetation*
- **Dr. J. Court Stevenson**, *UM Center for Environmental Science*
- **Dr. Jeffrey Cornwell**, *UM Center for Environmental Science*
- **Dr. Suzanne Bricker**, *National Oceanic and Atmospheric Administration*
- **Mr. Samuel Leonard**, *Ruff and Ready Seafood, Talbot County*
- **Mr. Brian Russell**, *Shore Thing Shellfish, LLC, St. Mary's County*
- **Mr. William Cox**, *Honga Oyster Company, Dorchester County*
- **Mr. Rick Meatyard**, *Oyster Farmer, St. Mary's County*
- **Mr. Lawrence Jennings**, *Coastal Conservation Association, Maryland*
- **Dr. Allison Colden**, *Scientist, Chesapeake Bay Foundation*
- **Ms. Hannah Catt**, *Intern, UMD Law School (non-voting)*
- **Ms. Melissa Stefun**, *Intern, Harry Hughes Center for Agro-Ecology (non-voting)*

## Support Programs

### *Maryland Agricultural and Resource Based Industry Development Corporation*

Since the creation of the Maryland Shellfish Aquaculture Financing Fund in 2011, MARBIDCO has approved 66 loans to 40 borrowers totaling \$3,780,963, for projects in 10 tidewater counties. 28 were for Submerged Land Leases, 31 for Water Column (cage or float) Leases, and seven were a combination of both bottom and water column projects. Fifty-seven loans were made to commercial watermen (TFL holders) and fifty-nine loans are fully drawn. Borrowers in good standing have an opportunity for forgiveness of 40% (up to maximum of \$100,000) or 25% (\$100,000 to \$300,000) of the loan principal balance amount.

In 2012, a special finance program was established for commercial watermen to develop remote setting systems to produce seed oysters. MARBIDCO has approved three loans in this program totaling \$90,000, with both being fully drawn. Growers who have taken advantage of this program have not only used the systems to produce seed oysters for their leased grounds but have sold it to the state for placement on public harvest grounds to keep that part of the oyster industry viable.



### *Education and Training*

University of Maryland Extension (UME) has received support since 2010 to conduct training programs for shellfish aquaculture. Initially provided by NOAA Blue Crab Industry Disaster funds through the Department of Natural Resources, recent years have been funded by the Philip



*UMD Shellfish Aquaculture Specialist Dr. Don Meritt demonstrates oyster biology to students during an extension training workshop*

E. and Carole R. Ratcliffe Foundation and the Oyster Recovery Partnership (ORP). Training programs include workshops, field demonstration and short courses on topics identified through needs assessments. Notification is sent to all leaseholders and posted on web and Facebook pages. Support materials include technical manuals and spreadsheets which are provided in print and electronic forms. Oyster Hatchery

Short Courses have been held at the state-of-the-art UMCES Horn Point Lab (HPL) with seasonal training provided through intern programs. The HPL hatchery is the largest in the world for the eastern oyster and produces almost 2 billion oysters for restoration and commercial development while conducting research into improved culture methods.

HPL, ORP and UME began a Remote Setting Training program in 2011 to provide setting systems in the Bay area. Growers use the setting system tanks to produce low cost spat on shell seed oysters for planting their bottom leases. Currently the program operates 38 systems in 8 locations around the Chesapeake Bay area. Growers reserve systems for two-week periods from June through August, with larvae, instruction and assessment of setting rates provided by hatchery technicians. Results are mailed to participants for filing with their required activity report at the end of the year. In seven years of operation, the program has grown as shown below:

	2011	2012	2013	2014	2015	2016	2017
Participants	12	18	27	31	40	45	45
No. of sites	5	6	9	9	9	8	8
No. of sets	38	113	167	130	172	212	212
Larvae used (m)	226	567	706	325	453	738	694
Spat produced (m)	33	212	278	186	146	235	259
Shell used (b)	6,000	19,000	30,200	17,710	25,784	38,776	30,427

#### *Remote Setting Training Program Statistics 2011-2017 (m=millions; b=bushels)*

Week-long Oyster Hatchery Short Courses have been taught at the HPL hatchery four times during the past seven years with lectures and hands-on work. Summer interns are annually provided training in hatchery operations while two gain additional experience by being placed with Madhouse Oyster Company in Fishing Creek to work with commercial growers. In 2017, interns from the DNR Work2Live Well Program obtained training at the hatchery as well as the



commercial producer site. At the hatchery, students handle oysters from conditioning through spawning and larval care, while learning phytoplankton production and business operations.

Extension programs are planned using surveys and needs assessments to provide industry input. Planning is done by Extension's Seafood Production Action Team which includes representatives from state agencies, UM components and non-governmental organizations. During 2017, a wide range of programs was offered in the areas of *Production Systems*, *Business Management* and *Seafood Technology*. These included:

### **Production Systems**

- *Seminars at the East Coast Commercial Fishermen's and Aquaculture Trade Expo*
- *Remote Setting Training Program - workshop, statewide training and local operations*
- *Cultchless Seed Production and Nursery Operations*
- *Water Column Aquaculture Gear Field Demonstration*
- *Data Collection and Analysis for Decision Making in Shellfish Aquaculture*
- *Oyster Disease Identification and Management*
- *Genetic Lines and Triploidy: Tools for Effective Aquaculture*
- *Understanding Sidescan Sonar Charting of Your Lease*
- *Shellfish Pest Identification and Predator Control*

### **Business Management**

- *Managing Risk in Shellfish Aquaculture*
- *Internet and Social Media Marketing for Your Business*
- *Tax Management for Shellfish Growers*
- *Marketing and Sales for Shellfish Growers*
- *Business Planning for Shellfish Grower*

### **Seafood Technology**

- *Analysis of Microbial Contaminants in Seafood*
- *Hazard Analysis Critical Control Point (HACCP) Training for Shellfish Growers*
- *Seafood HACCP Segment II*

Programs are evaluated by participant feedback to determine if they met the needs of attendees. Data from 2017 programs was used by the Action Team to plan 2018 training activities. This provides quality control for programs to meet industry needs.

In 2016, a Demonstration Oyster Farm was installed at Horn Point that contains gear used in water column leases for bottom, midwater and surface culture. Similar to an underwater Agricultural Experiment Station, it allows faculty to collect data on farming operations, conduct applied research and deliver educational programs using real world gear and situations. Growers view systems to determine which would best fit their location and production strategy. Faculty collect data on cost and labor to populate spreadsheets developed to create precise business plans.

## Issues and Recommendations

The Council has identified issues affecting the advancement of Maryland aquaculture and is providing the recommendations developed through their bi-monthly meetings. For 2018, the Council respectfully submits the following issues and recommendations for consideration:

### I. Water Quality Monitoring

**Issue:** The Maryland Department of Environment (MDE) is responsible for carrying out federal (Title 21 CFR Part 123) and state (Natural Resources Article 4-742 Maryland Annotated Code) mandating bacteriological monitoring and investigation into pollution sources to ensure that shellfish are harvested from unpolluted waters. In addition, MDE conducts intensive shoreline surveys to identify and mitigate pollution sources that may impact shellfish harvesting waters. Continued expansion of the oyster aquaculture industry has resulted in year-round oyster harvest that is increasing the number of monitoring stations needed to ensure adequate spatial coverage to protect public health. This has also increased personnel hours for shoreline surveys, and equipment and operational resource needs to support monitoring and data collection.



MDE's Compliance Division has tracked the hours devoted to aquaculture. In 2017, the number of personnel hours devoted specifically to aquaculture was 1,323 - about the same as the previous year. In addition, 13 new monitoring stations were added specifically for aquaculture, up from 6 stations that were added in 2016.

This year there is some uncertainty for funding past September 2018 when the Federal Fiscal Year ends. The administration in Washington has suggested a minimum 30% cut to the US Environmental Protection Agency's (EPA) funding for state monitoring programs, which includes shellfish. While oversight is from the US Food & Drug Administration (FDA), there is no funding provided for meeting their requirements. Over time, EPA funding has supported field monitoring programs because of the water quality and public health obligations required under the federal Clean Water Act. If action successfully cuts EPA funds, it will have a significant impact on MDE's monitoring programs, with heavy impact felt by Maryland's expanding aquaculture industry.

**Recommendation:** *Support additional state funds for MDE's shellfish programs and continue to track federal funding to ensure that fiscal gaps are addressed. These programs have been effective in assuring that Maryland's shellfish industry remains competitive nationally while maintaining its excellent reputation for safe and wholesome products. It is critical for Maryland's economic and public health needs to support MDE shellfish monitoring programs.*

## II. Shellfish Disease Diagnostic Services

**Issue:** Shellfish diseases are a continuing problem for expanding aquaculture production. Diagnostic services are critically needed for effective farm management but are currently constrained by lack of resources in the state laboratory conducting the work. The laboratory must expand to support industry growth and the increasing need for both routine and catastrophic diagnostic services. Without the ability to provide low cost service on a timely basis, Maryland will be unable to successfully compete with states that regularly provide these services to their industry quickly and at minimal cost.



**Recommendation:** *Expand DNR's Cooperative Oxford Laboratory shellfish disease diagnostic services by providing funds to hire an additional shellfish disease diagnostic technician with the expertise to carry out this work. Services should be charged at the lowest rate possible to: (a) encourage shellfish growers to regularly monitor their crops for disease prevalence and intensity on a regular schedule for proper biosecurity, and; (b) provide health certification for seed sold and shipped in interstate commerce to make Maryland hatcheries and nurseries competitive with other states that provide services at low or no cost to their industries.*

## III. Aquaculture Innovation Fund

**Issue:** Legislation creating the Aquaculture Coordinating Council provided eleven charges for the Council. Item ii directed the Council to “*Establish and monitor a grant program for the implementation of appropriate projects that support the economic health of the State aquaculture industry*”. To date, this charge has not been implemented because funds have



*New types of innovative culture equipment are being developed and assessed for growing oysters in our local waters*

not been provided. With the growth of the shellfish aquaculture industry, new equipment and methods have been brought to Maryland for the production of quality products with steady growth shown during the past seven years. However, those in business are often unable to allocate funds to develop innovative ideas for applied research that could result in more efficient gear, higher output, lower input costs and

identification of new markets. Providing funds for this purpose would keep Maryland producers at the forefront of the industry nationally.

**Recommendation:** *The Council's vision is for an Aquaculture Innovation Fund to be funded at \$100,000 annually and overseen by an Advisory Board comprised of seven individuals representing state agencies, the University of Maryland and industry. Growers would be required to be actively engaged in the Maryland seafood and aquaculture industries. Growers would submit proposals to the Board at specified times during the year. Funds would not be allowed for the purchase of vessels, vehicles or payment of salaries. The intent of the program is for those in production to pursue improvements in their operations without having to incur cost and risk during development. The program would fund supplies or develop equipment and provide support for innovative products or methods used for aquaculture commodities.*

*Proposals would be reviewed by the Advisory Board with external reviews requested, if required for additional input. At the conclusion of a project, a report would be required from the recipient which would be in the public domain for information transfer across a spectrum of users. Participants would also be encouraged to provide information on their projects through UM Extension programs.*

*To create this program, the Department of Natural Resources is asked to: 1) request funds in their budget to be submitted to the Governor's office for the 2019 fiscal year, or; 2) provide funds for this program from those they receive from the Maryland Port Administration (MPA) in their biennial agreement*

#### **IV. Protection of Property**

**Issue:** The Natural Resources Police (NRP) provides a strong presence to protect our marine resources. However, their ranks have been drastically reduced during the past two decades, leading to concern for their ability to protect natural shellfish stocks and to assist private growers in keeping their crops safe and secure. When NRP was merged with the Maryland Park Rangers in 2005, there were a total of 353 NRP officers and law enforcement officer park rangers. Immediately after the merger, 35 PINS were abolished or transferred to other agencies. Currently, NRP has an authorized strength of 260 with about 26 vacancies with more to come. Only 188 positions are sergeants and below assigned to uniformed, field patrol. These are the officers that are actually seen out in the field on a daily basis.



*Natural Resources Police presence has long been demonstrated as a high priority need to protect the private property of shellfish growers*

It is critical for the NRP to be able to respond quickly and effectively to aquaculture problems and theft has repeatedly been identified as a principal issue in industry surveys. Support for NRP assets is required if Maryland is going to meet the challenge of attracting private capital to invest and expand production of aquaculture crops to meet the growing demand for quality seafood. The Council has annually urged political leaders to provide additional funds for law enforcement officers to keep this a strong and visible force on the waters of the State and wishes to stress the importance at this time.

**Recommendation:** *Increase support for Natural Resources Police to deter theft of public and private shellfish stocks by providing the force with expanded personnel and funds for enhanced technological equipment that can multiply the efforts of duty personnel for enforcement activities. NRP developed a Strategic Plan for FY2015-FY2019 that specifically addresses staffing needs. Funding should be allocated to support of the staffing recommendations as detailed in that document.*

#### **Aquaculture Coordinating Council Summary**

The Council requests that respective state agencies consider the recommendations in this report when formulating budget requests for 2019 and urges the Governor and General Assembly to support them through the 2019 session. The Council looks forward to continuing the development of Maryland aquaculture - for **ECONOMIC GROWTH**, for **INCREASED EMPLOYMENT** and for the **ENVIRONMENTAL BENEFITS** that derive from a **HEALTHY AND THRIVING AQUACULTURE INDUSTRY**.





### *Members of the Maryland Aquaculture Coordinating Council*

Mr. Donald Webster, Chairman, University of Maryland Extension

Mr. Colby Ferguson, Vice-Chairman, Maryland Farm Bureau

Mr. Karl Roscher, Department of Natural Resources

Senator Katherine Klausmeier, Maryland Senate

Delegate Johnny Mautz, Maryland House of Delegates

Mr. J.D. Blackwell, 38 North Oysters, LLC, Aquaculture Industry

Mr. Eric Wisner, Wisner Oysters, Aquaculture Industry

Ms. Terry Witt, Witt Seafood, Aquaculture Industry

Mr. John VanAlstine, VanAlstine Seafood, TFL

Mr. Stuart Dawson, TFL

Mr. Jim Mullin, TFL

Dr. Donald Meritt, University of Maryland Center for Environmental Science

Dr. Reginal Harrell, University of Maryland – Research

Ms. Kim Coulbourne, Department of Health

Mr. Ron Buckhalt, Department of Agriculture

Mr. Paul Spies, Department of Commerce

Ms. Kathy Brohawn, Department of the Environment

Lt. Catherine Medellin, Natural Resources Police

Mr. Stephan Abel, Oyster Recovery Partnership





Larry Hogan, Governor



Mark Belton, Secretary

Karl Roscher  
Assistant Director  
410-260-8313

Fishing and Boating Services  
Aquaculture and Industry Enhancement  
580 Taylor Ave, C-2  
Annapolis, MD 21401

Toll free in Maryland: 877-620-8367  
Out of state call: 410-260-8300  
TTY Users call via the MD Relay 711

***[dnr.maryland.gov](http://dnr.maryland.gov)***

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